

Human papillomavirus vaccine

Priyanka Singhal, Y. S. Marfatia

Department of Skin and V.D, Medical College and SSG Hospital, Vadodara, India

Correspondence:

Dr. Y. S. Marfatia, Department of Skin and V.D, Medical College and SSG Hospital, Vadodara, India. E-mail: ym11256@yahoo.com

NEW HPV VACCINE UNDER STUDY

A new vaccine against nine of the most harmful strains of human papillomavirus (HPV) is under study at the Medical College of Georgia. The vaccine, called nine-valent, is being compared with Gardasil, a quadrivalent vaccine already in the market that works against the two most deadly HPV types. Gardasil, approved by the U.S. Food and Drug Administration in 2006, protects against HPV types 16 and 18, which cause about 70% of HPV-related cervical cancer cases, and types 6 and 11, which cause about 90% of genital wart cases. The new drug could prevent infection from those four types and five other cancer-causing types. Like Gardasil, the new vaccine contains proteins that form virus-like particles that assemble into a hollow sphere resembling HPV's protective coating. Since the sphere lacks the actual viral DNA on the inside, it cannot cause HPV, but the body is tricked into making antibodies to protect against the real thing.

ScienceDaily (Nov. 20, 2007) — A new vaccine against nine of the most harmful strains of human papillomavirus is under study at the Medical College of Georgia. file:///E:/New%20HPV%20Vaccine%20Under%20Study.htm

VACCINE PROMISING IN MICE

According to researchers the new HPV vaccine might cover all types of HPV and be given as a nasal spray. Researchers say they have created a synthetic vaccine that can be delivered as a nasal spray for HPV - source of the most common sexually transmitted disease in the United States and a cause of cervical cancer. The experimental vaccine, tested so far just with mice, also offers protection against different strains of HPV. The existing vaccine

for HPV, called Gardasil, protects against four strains of the virus responsible for about 70% of all cervical cancers. It requires three injections for full protection. The advantages of the synthetic vaccine are that it can be synthesized as if it were a drug and, made chemically in the lab rather than having to use biological systems. A synthetic vaccine should also be cheaper. Using this approach, the vaccine could also be given nasally. In their experiments, Roden and his colleagues used a protein from one of the strains of HPV - HPV16 - to create a man-made vaccine in the laboratory. When the vaccine was given to mice by injection or as nasal spray, it protected not only against HPV16, but also against another strain of the virus -HPV45.

Steven Reinberg; New HPV Vaccine Promising in Mice. It might cover all types of HPV and be given as a nasal spray, researchers say, posted 4/15/08; health day; available on file:///E:/New%20HPV%20Vaccine%20Promising%20in%20Mice.htm

CROSS-PROTECTION FOR HPV TYPES NOT COVERED BY VACCINE

Impact of a quadrivalent HPV vaccine on infection and cervical disease related to 10 non-vaccine HPV types (31, 33, 35, 39, 45, 51, 52, 56, 58, and 59) associated with more than 20% of cervical cancers was evaluated. Vaccination reduced the rate of HPV-31/33/45/52/58 infection by 17.7% and of cervical intraepithelial neoplasia (CIN) 1-3 or adenocarcinoma in situ (AIS) by 18.8%. Vaccination also reduced the rate of HPV-31/58/59-related CIN1-3/AIS by 26.0, 28.1, and 37.6%, respectively. Although a modest reduction in HPV-31/33/45/52/58-related CIN2 or worse was observed, the estimated reduction was not statistically significant. These cross-protection

How to cite this article:

Singhal P, Marfatia YS. Human papillomavirus vaccine. Indian J Sex Transm Dis 2008;30:51-2.

results complement the vaccine's prophylactic efficacy against diseases associated with HPV-6, -11, -16, and -18.

Wheeler et al. The impact of quadrivalent human papillomavirus (HPV; types 6, 11, 16, and 18) L1 virus-like particle vaccine on infection and disease due to oncogenic non vaccine HPV types in sexually active women aged 16-26 years; J Infect Dis. 2009 Apr 1;199(7):919-22.

VACCINE EFFECTIVE FOR OLDER WOMEN AND YOUNG MEN: STUDIES

HPV infection typically occurs within a few years after a person becomes sexually active, so the vaccine is recommended at a young age. Gardasil is currently approved for girls and young women aged 9 to 26 years. Recent studies, however, indicate that the vaccine is also effective for older women and young men. As reported in the June 1, 2009 advance online edition of *The Lancet*, Nubia Muñoz from the National Institute of Cancer in Bogota, Columbia, and colleagues reported that the quadrivalent HPV vaccine is efficacious in women aged 24-45 years not infected with the relevant HPV types at enrolment. In men, anal-genital HPV infection can lead to genital warts and penile, perineal, perianal and anal neoplasia and cancer. In addition, male HPV infection contributes significantly to infection and subsequent cervical disease in women. The

quadrivalent HPV vaccine is efficacious in reducing the burden of HPV 6/11/16/18-related external genital lesions and infection in young men aged 16-26 years naive to the relevant HPV type at baseline.

Studies Show HPV Vaccine Is Effective for Older Women and Young available from Menhttp://www.hivandhepatitis.com/recent/2009/060909_e.html

EDITOR'S NOTE

Gardasil (Merck's cervical cancer vaccine) is the first vaccine against HPV to be awarded World Health Organization (WHO) prequalification. It is a recombinant quadrivalent vaccine against HPV types 6,11,16 and 18 responsible for 70% of cervical cancer and 90% of genital warts. It is currently indicated for use in girls and young women 9through 26 years of age for the prevention of cervical, vulvar and vaginal cancers and warts. In July, 2009, WHO approved another cervical cancer vaccine Cervarix made by GlaxoSmithKline. It protects against HPV 16 and 18. Cervarix is formulated with AS04, a proprietary adjuvant that boosts the immune system response for a longer period of time to HPV strains. In developing countries, HPV vaccination seems to be a distant dream due to high cost.

Source of Support: Nil, Conflict of Interest: None declared.
--